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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,568	11/28/2000	Ramesh Mantha	13222.00015	9254

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EXAMINER

LE, DANH C

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,568

Applicant(s)

MANTHA, RAMESH

Examiner

DANH C LE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 11-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, line 7, it is unclear to what the term "the total signal received" refers to.

Claims 15-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claim 14, the limitation "means to determine at least one interfering signal transmitted by said base station and the received power level of said at least one interfering signal" which refers only one base station that contradicting to claim 16 and the specification describing the interference signals were transmitted by the second base station.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe (US 5,046,133).

As to claim 1, Watanabe teaches a method of improving reception in a multiple access communications system (figure 4, col.11, line 7-col.12, line 21) comprising the steps of

- (i) determining at least one interfering signal transmitted from a transmitter;
- (ii) determining the received power level at a receiver of said at least one determined interfering signal;
- (iii) subtracting said at least one determined interfering signal, at said received power level, from the total signal received at said receiver; and
- (iv) determining a desired signal from the result of said subtraction.

As to claim 3, Watanabe teaches the method of claim 1 wherein at least two interfering signals are transmitted by said transmitter and said receiver determines each of said at least two interfering signals and their respective received power levels and subtracts those determined interfering signals at their respective received power levels from said total received signal (col.11, line 7-col.12, line 21).

As to claim 5, Watanabe teaches the method of claim 1 wherein said at least one interfering signal is a communication system control signal (col.2, lines 46-57).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 6, 7 9 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Dam (US 6,223,040).

As to claim 2, Watanabe teaches the method of claim 1. Watanabe fails to teaches at least one interfering signal is a synchronization signal. Dam teaches the interfering signal is a synchronization signal (col.8, line 56-col.9, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Dam into the system of Watanabe in order to enhance system performance of the interference cancellation circuit.

As to claim 6, Watanabe teaches the method of claim 1 further repeating the steps of:

- (a) determining at least one interfering signal.
- (b) determining the received power level at said receiver of said at least one determined interfering signal.
- c) performing step (iii) by also subtracting the interfering signal determined at step (a) at the received power level determined at step (b) from the total signal received at said receiver; and

(d) performing step (iv) to determine, a desired signal from the result of the subtractions.

Watanabe fails to teaches that these signals are transmitted by the second base station. Dam teaches the signals are transmitted by the second base station (col.5, lines 12-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Dam into the system of Watanabe in order to enhance system performance of the interference cancellation circuit.

As to claim 7, the combine of Watanabe and Dam teaches the method of claim 6 wherein said interfering signal determined in step (a) is a non interfering signal to at least one other receiver (Dam, col.8, line 56-col.9, line 5).

As to claim 9, the combine of Watanabe and Dam teaches method of claim 6 wherein said other transmitter is as adjacent base station (Dam, col.5, lines 6-60).

As to claim 10, the combine of Watanabe and Dam teaches the method of claim 6 wherein said other transmitter is an adjacent sector of a multi sector base station (Dam, col.5, lines 6-60).

3. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dam in view of Watanabe (US 5,046,133).

As to claim 15, Dam teaches a multiple access communication system including a plurality of subscriber stations and at least one base station to transmit signals to said subscriber stations (figure 1, col.5, lines 6-60), said subscriber stations comprising;

means to receive said signals transmitted by said at least one base station;
means to determine at least one interfering signal transmitted by said base station and
the received power level of said at least one interfering signal;

Dam fails to teaches the means to subtract said determined at least one
interfering signal at said received power level from said received signals; and means to
determine a desired signal from the result of said subtraction. Watanabe teaches the
means to subtract said determined at least one interfering signal at said received power
level from said received signals; and means to determine a desired signal from the
result of said subtraction (col.11, line 7-col.12, line 21). Therefore, it would have been
obvious to one of ordinary skill in the art at the time the invention was made to provide
the teaching of Watanabe into the system of Dam in order to enhance system
performance of the cellular network.

As to claim 16, the combine of Dam and Watanabe teaches the communication
system of claim 15 including at least first and second base stations, each base station
transmitting signals to different subscriber stations of said plurality of subscriber
stations, said means to determine in a subscriber station served by said first base
station being operable to also determine at least one interfering signal transmitted by
said second base station and the received power level of said interfering signal (Dam,
figure 1, col.5, lines 6-60) and said means to subtracting said subscriber station being
operable to subtract said determined at least one interfering signals received from each
of said first and second base stations at said receiving power levels respectively from

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said received signals and said means to determine a desired signal from the result of said subtraction (col.11, line 7-col.12, line 21).

As to claim 17, the combine of Watanabe and Dam teaches the communication system of claim 15 wherein said base station includes at least first and second sectors, each of said first and second sectors transmitting signals to different subscriber stations of said plurality of subscriber stations, said means to determine in a subscriber station served by said first sector being operable to also determine at least one interfering signal transmitted by said second sector and the received power level of said interfering signal (Dam, figure 1, col.5, lines 6-60) and said means to subtract in said subscriber station being operable to subtract said determined at least one interfering signals receiving from each of said first and said second sections at said respective received power levels from said received signals and said means to determine a desired signal from the result of said subtraction (col.11, line 7-col.12, line 21).

As to claim 18, the claim is an apparatus claim of the claim 15; therefore, the claim is interpreted and rejected as set forth as in the claim 15.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Ekemark (US 5,740,166).

As to claim 4, Watanabe teaches the method of claim 3 wherein said at least two interfering signals are transmitted by said transmitter. Watanabe fails to teach a first synchronization signal for determining slot timing in signals and a second synchronization signal for determining frame timing in signals. Ekemark teaches a first synchronization signal for determining slot timing in signals and a second

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synchronization signal for determining frame timing in signals (col.4, lines 13-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ekemark into the system of Watanabe in order to enhance system performance of the interference cancellation circuit.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe and Dam in view of Ozluturk (US 6,498,784).

As to claim 8, the combine of Watanabe and Dam teaches the method of claim 7. The combine fails to teach the interfering signal determined in step (a) is a pilot signal. Ozluturk teaches the interfering signal determined in step (a) is a pilot signal (col.3, lines 57-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ozluturk into the system of Watanabe and Dam in order to enhance system performance of the interference cancellation circuit.

Allowable Subject Matter

Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claims 11-14, the teaching of above prior arts fail to teach the limitation of recited claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Kim et al (US 6,570,864) teaches the integrated receiving apparatus of subtractive interference cancellation receiver and adaptive MMSE receiver.

B. Hiramatsu (US 6,498,928) teaches the radio reception apparatus and method for detecting reception timing.

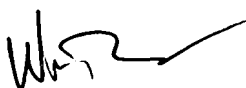
Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANH C LE whose telephone number is 703-306-0542. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM TROST can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Danh C. Le



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